

## Appendix D

### Biological Resources Assessment

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# Biological Resources Assessment

Deer Creek Flow Enhancement Program  
Six Potential Well Sites  
Tehama County, California

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Services, Inc.

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Submitted by:

 **FOOTHILL ASSOCIATES**

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## 1.0 EXECUTIVE SUMMARY

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A Foothill Associates' biologist conducted a biological resources assessment on October 30, 2008, to evaluate the Deer Creek Flow Enhancement Program Project's (Project) six potential well sites located within the Deer Creek Irrigation District (DCID). The proposed Project is located in southeastern Tehama County, California approximately 20 miles north of the City of Chico and 22 miles south of the City of Red Bluff and two miles east of the community of Vina in Tehama County. The six potential project sites are located within agricultural areas in proximity to Deer Creek and Delaney Slough.

The purpose of this document is to summarize the general biological resources on the site, to assess the suitability of the site to support special-status species and sensitive habitat types, and to provide recommendations for regulatory permitting or further analysis that may be required prior to development activities occurring on the site.

This document analyzes six potential well drilling, or rebuilding sites, comprised of approximately  $\pm 0.25$  acre each. The Department of Water Resources is intending to utilize two of the six well sites for agricultural water wells to irrigate adjacent agricultural areas. Ground water from these wells would compensate for water historically diverted from Deer Creek. Deer Creek flows no longer diverted will benefit resident salmonids and improve access to 25 miles of habitat upstream from Sanford Vina Diversion Dam.

Land use surrounding the sites is comprised entirely of agricultural fields and single-family residential dwellings. Known or potential biological constraints associated with the potential well sites include the following:

- Potential habitat for valley elderberry longhorn beetle adjacent to site A2-Edson Property;
- Potential nesting habitat and foraging habitat for raptors, including Swainson's hawk and western burrowing owl, adjacent to proposed sites;
- Potential nesting habitat for other bird species protected by the Migratory Bird Treaty Act (MBTA), adjacent to proposed sites; and
- Potentially jurisdictional waters of the United States (ephemeral drainage) in the vicinity of A-4 Fox Property well site.

## 2.0 INTRODUCTION

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This report summarizes the findings of a biological resources assessment and habitat assessment, including wetlands and other waters of the United States (waters of the U.S.) completed for six potential well drilling, or rebuilding sites comprised of approximately  $\pm 0.25$  acre each. These six sites are all being considered to best place two agricultural water wells that would be utilized to irrigate adjacent agricultural areas to compensate for water historically diverted from Deer Creek. These Deer Creek Flow Enhancement Program Project's potential well sites are located within Tehama County, California approximately 20 miles north of the City of Chico and 22 miles south of the City of Red Bluff and two miles east of the community of Vina in Tehama County.

This document addresses the onsite physical features, as well as plant communities present and the common plant and wildlife species occurring, or potentially occurring, on the site. Furthermore, the suitability of habitats to support special-status species and sensitive habitats are analyzed and recommendations are provided for any regulatory permitting or further analysis required prior to development activities occurring on the site.

### **3.0 REGULATORY FRAMEWORK**

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The following describes federal, state, and local environmental laws and policies that are relevant to the California Environmental Quality Act (CEQA) review process. The CEQA significance criteria are also included in this section.

#### **3.1 Federal Endangered Species Act**

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction (federally listed species). FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend.

FESA prohibits the “take” of endangered or threatened wildlife species. “Take” is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3). Harassment is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR §17.3). Actions that result in take can result in civil or criminal penalties.

FESA and Clean Water Act (CWA) Section 404 guidelines prohibit the issuance of wetland permits for projects that jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species. The U.S. Army Corps of Engineers (Corps) must consult with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) when threatened or endangered species under their jurisdiction may be affected by a proposed project. In the context of the proposed project, FESA would be initiated if development resulted in take of a threatened or endangered species or if issuance of a Section 404 permit or other federal agency action could result in take of an endangered species or adversely modify critical habitat of such a species.

#### **3.2 Migratory Bird Treaty Act and California Fish and Game Code**

The federal Migratory Bird Treaty Act (MBTA), first enacted in 1916, prohibits any person, unless permitted by regulations, to, “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds or any part, nest, or egg of any such bird.” (16 U.S.C. 703).

The list of migratory birds includes nearly all bird species native to the United States. The Migratory Bird Treaty Reform Act (MBTRA) of 2004 further defined species protected under the act and excluded all non-native species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests. Thus, it is illegal under MBTA to directly kill, or destroy a nest of, nearly any bird species, not just endangered species. Activities that result in removal or destruction of an active nest (a nest with eggs or young being attended by one or more adults) would violate the MBTA. Removal of unoccupied nests, or bird mortality resulting indirectly from disturbance activities, is not considered a violation of the MBTA.

Section 3503.5 of the California Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Disturbance activities that result in abandonment of an active bird-of-prey nest in areas adjacent to the disturbance may also be considered a violation of the Fish and Game Code.

### **3.3 California Endangered Species Act**

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing CEQA documents. The purpose is to ensure that the lead agency’s actions do not jeopardize the continued existence of a listed species or result in the destruction or adverse modification of habitat essential to the continued existence of those species if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy would occur, and allows CDFG to identify “reasonable and prudent alternatives” to the project consistent with conserving the species. CESA allows CDFG to authorize exceptions to the state’s prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

### **3.4 Species of Concern**

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFG, USFWS and lead agencies during the CEQA process. Species that may be considered for review are included on a list of “Species of Special Concern,” developed by these resource agencies. It tracks species in California whose numbers, reproductive success, or habitat may be in decline.

### **3.5 California Native Plant Society**

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and



Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants presumed Extinct in California
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere
- List 3: Plants about which we need more information – A Review List
- List 4: Plants of limited distribution – A Watch List

### **3.6 Jurisdictional Waters of the United States**

#### **3.6.1 Federal Jurisdiction**

The Corps regulates discharge of dredged or fill material into waters of the United States (waters of the U.S.) under Section 404 of the CWA. “Discharges of fill material” are defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition, Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of waters is present. Methods for delineating wetlands and non-tidal waters are described below.

- Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the “normal circumstances” for the site.
- The lateral extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)]. The OHWM is defined by the Corps as “that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the

presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 C.F.R. §328.3(e)].

### **3.6.2 State Jurisdiction**

CDFG is a trustee agency that has jurisdiction under Section 1600 *et seq.* of the California Fish and Game Code. Under Section 1602, a private party must notify CDFG if a proposed project will “substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds...except when the department has been notified pursuant to Section 1601.” If an existing fish or wildlife resource may be substantially adversely affected by the activity, CDFG may propose reasonable measures that will allow protection of those resources. If these measures are agreeable to the parties involved, they may enter into an agreement with CDFG identifying the approved activities and associated mitigation measures.

### **3.7 CEQA Significance Criteria**

Section 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded Initial Study checklist contained in Appendix G of the CEQA Guidelines. Appendix G provides examples of impacts that would normally be considered significant. Based on these examples, impacts to biological resources would normally be considered significant if the project would result in any of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and

- Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional or state habitat conservation plan.

An evaluation of whether or not an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant according to CEQA. This is necessary because although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish, or result in the permanent loss of, an important resource on a population-wide or region-wide basis.

## 4.0 METHODS

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Available information pertaining to the natural resources of the region was reviewed. All references reviewed for this assessment are listed in the References section of this document. Site-specific information was reviewed including the following sources:

- California Department of Fish and Game. 2008. *California Natural Diversity Data Base* (CNDDB). Sacramento, California;
- Natural Resources Conservation Service. 2005. *Soil Survey of Tehama County, California* (derived from SSURGO data). U.S. Department of Agriculture;
- California Native Plant Society. 2008. Inventory of Rare and Endangered Plants. <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>
- U.S. Fish and Wildlife Service. 2008. Federal Endangered and Threatened Species that may be affected by Projects in the *Vina* and *Richardson Springs NW* 7.5 minute series quadrangles. Sacramento, California.; and
- U.S. Geological Survey. 1967. Photorevised 1980. *Richardson Springs NW, California*. 7.5-minute series topographic quadrangle. United States Department of Interior.
- U.S. Geological Survey. 1967. Photorevised 1980. *Vina, California*. 7.5-minute series topographic quadrangle. United States Department of Interior.
- U.S. Department of Agriculture. 2005. NAIP 1m Aerial Imagery; Tehama County.

Foothill Associates' biologist, Ryan Brown, accompanied by Bill Ehorn from the California Department of Water Resources, conducted a field survey of the sites on October 30, 2008. The sites were surveyed visually in instances where fields were fenced off and contained livestock, and on foot where easily accessible. Special attention was given to identifying portions of the sites, and their immediate vicinity, with any potential for supporting special-status species and/or sensitive habitats. During the field survey, the biologist recorded plant and animal species observed, as well as characterized biological communities occurring onsite and informally delineated wetland and other waters of the U.S.

## 5.0 RESULTS

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### 5.1 Site Location and Description

The six potential well sites are located in Tehama County east of State Highway 99 in the vicinity of Leininger Road and Delaney Slough (**Figure 1**). All well sites are located within or adjacent to agricultural fields on private property. Agricultural land use surrounds all well sites and includes, cattle pasture, walnut orchard, almond orchard, and general pasture area. All potential well sites are adjacent to existing agricultural canals used to irrigate adjacent fields. The proposed project is located south of Deer Creek in Section 33 of Township 25 North, Range 1 West MDB&M, *Richardson Springs NW* Quadrangle and Sections 5, 6, 7, and 8 of Township 24 North, Range 1 West, MDB&M, *Vina* Quadrangle USGS topographic maps (**Figure 1**). Access to the project sites is provided by State Highway 99, Leininger Road, and Reed Orchard Road.

### 5.2 Physical Features

#### 5.2.1 Topography and Drainage

Localized topography slopes to the southwest. Elevations within the localized watershed range from approximately 250 to 320 feet above mean sea level. Proposed well sites do not contain defined drainages and are graded flat. Localized precipitation consolidates within canals and ephemeral drainages, eventually conveyed downslope to Delaney Slough or Deer Creek and flows out of the vicinity. Delaney Slough eventually confluences with Deer Creek southwest of the proposed project areas and Deer Creek confluences with the Sacramento River which eventually reaches the Pacific Ocean.

#### 5.2.2 Soils

- The Natural Resources Conservation Service (NRCS) has mapped 7 soil units in the vicinity of the well sites (**Figure 2**). Proposed well sites actually occur on 4 different soil types. These four soil types include: Molinos complex channeled (Sites A2 Edson Property and A4 Fox Property); Molinos fine sandy loam (RW1 Edson Well); Molinos fine sandy loam, deep over gravel (A3 Edson Property); and Keefers loam, moderately deep, 0 to 3 percent slopes (RW2 Knox Well).

### 5.3 Biological Communities

Two biological communities comprise, or lie adjacent to, the six potential well sites including irrigated pasture and deciduous orchard. These communities provide habitat to a number of common species of wildlife and may provide suitable habitat for special-status species. Each of the biological communities including associated common plant and wildlife species observed, or that are expected to occur within these communities are described below.

### 5.3.1 Irrigated Pasture

Irrigated pasture comprises the general surroundings of three of the Project's potential well sites: RW2 Knox Well, A4 Fox Property; and A1 Pitter Property. Irrigated pasture vegetation can be a mix of perennial grasses, forbs, and legumes. These areas are irrigated to provide forage for cattle herds or horses present onsite. The height of the vegetation can vary, according to season and livestock grazing intensities, from a few inches to two or more feet. Common grassland and herbaceous species observed, or assumed to occur in this habitat include perennial ryegrass (*Lolium perenne*), Mediterranean barley (*Hordeum marinum* spp. *gussoneanum*), narrow leaf plantain (*Plantago lanceolata*), butterweed (*Senecio* sp.), filaree (*Erodium cicutarium* and *E. botrys*), vetch (*Vicia* sp.), California poppy (*Eschscholzia californica*), johnny-tuck (*Triphysaria eriantha*), Bermuda grass (*Cynodon dactylon*), bindweed (*Convolvulus arvensis*), dandelion (*Taraxacum officinale*), soft chess (*Bromus hordeaceus*), and rose clover (*Trifolium hirtum*).

Irrigated pasture habitat supports breeding, foraging, and shelter habitat for several species of wildlife. Species observed in this biological community during the site surveys included northern harrier (*Circus cyaneus*), western meadowlark (*Sturnella neglecta*), European starling (*Sturnus vulgaris*), killdeer (*Charadrius vociferous*), and white-crowned sparrow (*Zonotrichia leucophrys*). Other species expected to occur in this habitat include black-tailed jackrabbit (*Lepus californicus*), raccoon (*Procyon lotor*), and various species of birds, snakes, and rodents.

### 5.3.2 Deciduous Orchard

Deciduous orchard comprises the habitat community associated with, or adjacent to, potential well sites RW1 Edson Well, A2 Edson Property, and A3 Edson Property. These sites are comprised of, or are adjacent to almond trees, and walnut trees respectively. The deciduous orchards onsite have relatively open understories and appear to be managed to prevent understory growth of low-growing grasses and other herbaceous plants. The trees are well established and are small to medium sized relative to species type.

Orchard habitat, although man-made, provides foraging and shelter opportunities for several species of wildlife including yellow-billed magpie (*Pica nuttalli*), California quail (*Callipepla californica*), mourning dove (*Zenaida macroura*), northern flicker (*Colaptes auratus*), California ground-squirrel (*Spermophilus beecheyi*), black-tailed jackrabbit, coyote (*Canis latrans*), raccoon, and mule deer (*Odocoileus hemionus*) (CDFG, 1988). In addition, orchards provide potential foraging opportunities for a number of raptor species such as red-tailed hawk (*Buteo jamaicensis*), observed during surveys, Cooper's hawk (*Accipiter cooperii*), white-tailed kite (*Elanus leucurus*), and northern harrier.

## 5.4 Sensitive Habitats

Sensitive habitats include those that are of special concern to resource agencies or those that are protected under CEQA, Section 1600 of the California Fish and Game Code,

and/or Sections 401 and 404 of the Clean Water Act. Additionally, sensitive habitats are protected under the specific policies outlined in the Tehama County General Plan.

#### **5.4.1 Potential Jurisdictional Waters of the U.S.**

One unlined, presumably natural drainage and associated hydrophytic vegetation was noted in the vicinity of the proposed A4 Fox Property well site. Obvious dominant hydrophytic vegetation included Himalayan blackberry (*Rubus discolor*), California grape (*Vitis californica*), Johnson grass (*Sorghum halepense*) and valley oak (*Quercus lobata*). This feature would be classified as an ephemeral drainage and occurs just north of the existing lined canal adjacent to the property's driveway.

Jurisdictional waters of the U.S. include jurisdictional wetlands as well as all other waters of the U.S. such as creeks, ponds, intermittent and ephemeral drainages. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Wetland Training Institute, 1995). The majority of jurisdictional wetlands in the United States meet three wetland assessment criteria: hydrophytic vegetation, hydric soils, and wetland hydrology. Jurisdictional waters of the U.S. can also be defined by exhibiting a defined bed and bank and OHWM. As discussed in Regulatory Framework, jurisdictional waters of the U.S. are subject to Section 404 of CWA and are regulated by the Corps. Wetlands within the site may be isolated and not regulated by the Corps, but an intense watershed analysis and extensive effort is necessary to pursue the argument with the Corps wetland regulatory department.

#### **5.4.2 Wildlife Migration Corridors**

Wildlife movement zones are important for the movement of migratory wildlife populations. Corridors provide foraging opportunities and shelter during migration. Generally, wildlife movement zones are established migration routes for many species of wildlife. Movement corridors often occur in open areas or riverine habitats that provide a clear route for migration in addition to supporting ample food and water sources during movement. No migration corridors are associated with the proposed well sites.

### **5.5 Special-Status Species**

Special-status species are plant and animal species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Listed and special-status species are of relatively limited distribution and may require specialized habitat conditions. Special-status species are defined as meeting one or more of the following criteria:

- Listed or proposed for listing under CESA or FESA;
- Protected under other regulations (e.g. Migratory Bird Treaty Act);

- CDFG Species of Special Concern;
- Listed as species of concern by CNPS or USFWS; or
- Receive consideration during environmental review under CEQA.

Special-status species considered for this analysis are based on queries of the CNDDDB, the USFWS and CNPS species lists (online versions) for the *Vina* and *Richardson Springs NW* 7.5 minute series quadrangles. These species lists include all potentially occurring special-status species known to occur within the two quads mentioned and additional 8 quads surrounding both *Vina* and *Richardson Springs NW*. **Table 1** below, includes the common name and scientific name for each of these species, their regulatory status (federal, state, local, CNPS), habitat descriptions, and potential for occurrence on the site. **Figure 3** depicts the locations of special-status species recorded in the CNDDDB within five miles of the site (10-mile radius for Swainson's hawk) and designated critical habitat within the vicinity of the Project Area. The following set of criteria has been used to determine each species' potential for occurrence on the site:

- **Present:** Species is known to occur on the site, based on CNDDDB records, and/or was observed onsite during the field survey(s).
- **High:** Species is known to occur on or near the site (based on CNDDDB records within five miles, and/or based on professional expertise specific to the site or species) and there is suitable habitat onsite.
- **Low:** Species is known to occur in the vicinity of the site, and there is marginal habitat onsite.-**OR**-Species is not known to occur in the vicinity of the site, however there is suitable habitat onsite.
- **No:** There is no suitable habitat for the species onsite.-**OR**-Species was surveyed for during the appropriate season with negative results.

Only those species that are known to be present or that have a high or low potential for occurrence will be discussed further following **Table 1**.



**Table 1 — Listed and Special-Status Species Potentially Occurring  
on or in the Vicinity of the Deer Creek Flow Enhancement Program Site in Tehama  
County, CA.**

<b>Special-Status Species</b>	<b>Regulatory Status (Federal; State; Local; CNPS)</b>	<b>Habitat Requirements</b>	<b>Identification Period</b>	<b>Potential for Occurrence</b>
<b>Plants</b>				
Adobe lily <i>Fritillaria pluriflora</i>	-- ; --; --; 1B	Generally occurs on heavy clay soils within chaparral, cismontane woodland, and valley and foothill grassland habitats.	February - April	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Ahart's paronychia <i>Paronychia ahartii</i>	-- ; --; --; 1B	Typically occurs on well-drained, thin soils, in a variety of environments including cismontane woodland, valley and foothill grassland, and vernal pool margins.	March-June	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Baker's Navarretia <i>Navarretia leucocephala</i> ssp. <i>bakeri</i>	--;--;--;1B	Cismontane woodland, lower montane coniferous forest, meadows, seeps, and grasslands from 50 to 5,200 feet above MSL.	May - July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	-- ;-- ;-- ; 1B	Marshes and swamps; vernal pools.	April-August	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Brown Fox Sedge <i>Carex vulpinoidea</i>	--;--;--;2	Marshes, swamps, and riparian woodlands within the northern Central Valley and southern California.	May-June	<b>No.</b> No t observed during survey. Most "wet" areas are concrete lined.
Butte County checkerbloom <i>Sidalcea robusta</i>	-- ; --; --; 1B (Butte County Endemic)	Rocky and brush-covered slopes on Tuscan Formation mud flow, typically within chaparral, and cismontane woodland environments.	April-June	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Butte County meadowfoam <i>Limnanthes floccosa</i> ssp. <i>californica</i>	FE ; CE; --; 1B (Butte County Endemic)	Mesic valley and foothill grasslands and vernal pools in elevations ranging from approximately 160 to 3,050 feet above MSL.	March-May	<b>No.</b> No suitable habitat occurs in the study areas.
Butte County Morning Glory <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	--;--;--;1B	Chaparral and lower montane coniferous forest; Sometimes roadsides between 600-1524 meters.	May-July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
<b>Plants (continued)</b>				
California beaked-rush <i>Rhynchospora californica</i>	-- ; --; --; 1B	Bogs, fens, meadows, seeps, and freshwater marshes and swamp habitats.	May-July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
California satintail <i>Imperata brevifolia</i>	-- ; -- ; -- ; 2	Monocot occurring in meadows and seeps, chaparral, and riparian scrub. Ranges widely across California.	Sept.-May	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Dwarf Downingia <i>Downingia pusilla</i>	--;--;--;2	Vernal pools.	Mar-May	<b>No.</b> No suitable habitat occurs in the study areas.
Ferris milk-vetch <i>Astragalus tener</i> var. <i>ferrisiae</i>	--;--;--;1B	Meadows and seeps, valley and foothill grasslands from 20 to 230 feet above MSL.	April - May	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Flagella-like atractylocarpus <i>Atractylocarpus flagellaceus</i>	--;--;--;2	(A bryophyte/moss found in) Cismontane woodland between 100 and 500 meters elevation.	Year round	<b>No.</b> No suitable habitat occurs in the study areas.
Greene's Tuctoria <i>Tuctoria greenei</i>	FE;--;--;1B	Vernal pools between 30-1070 meters.	May-Jul(Sept)	<b>No.</b> No suitable habitat occurs in the study areas.
Hairy Orcutt Grass <i>Orcuttia pilosa</i>	FE;--;--;1B	Vernal pools, typically ones with long inundation periods.	May-Sept	<b>No.</b> No suitable habitat occurs in the study areas.
Henderson's Bent Grass <i>Agrostis hendersonii</i>	--;--;--;3	Vernal pools within valley and foothill grasslands between 70 and 305 meters elevation.	Apr-May	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Hoover's Spurge <i>Chamaesyce hooveri</i>	FT;--;--;1B	Vernal pools.	Jul-Sept (Oct)	<b>No.</b> No suitable habitat occurs in the study areas.
Legenere <i>Legenere limosa</i>	--;--;--;1B	Vernal pools.	April-June	<b>No.</b> No suitable habitat occurs in the study areas.
Norris' Beard Moss <i>Didymodon norrisii</i>	--;--;--;2	(A bryophyte/moss found in) Cismontane woodland; Lower montane coniferous forest/intermittently mesic, rock between 600 and 1973 meters	Year round	<b>No.</b> No suitable habitat occurs in the study areas.
Pink Creamsacs <i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	-- ; -- ; -- ; 1B	Meadows and seeps; valley foothill grasslands.	April-June	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Red Bluff Dwarf Rush <i>Juncus leiospermus</i> var. <i>leiospermus</i>	-- ; --; --; 1B	Vernally mesic areas within chaparral, cismontane woodland, meadows, seeps, valley and foothill grassland, and vernal pool environments.	March-May	<b>No.</b> No suitable habitat occurs in the study areas.
Round-leaved filaree <i>California macrophylla</i>	--; --; --; 1B	Valley and foothill grassland in friable clay soils.	March-May	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Sanford's arrowhead <i>Sagittaria sanfordii</i>	--;--;--;1B	Assorted shallow freshwater marshes and swamps.	May - October	<b>No.</b> Not observed during site survey.
Silky Cryptantha <i>Cryptantha crinita</i>	--;--;--;1B	Foothill Woodland, Yellow Pine Forest, Valley Grassland between 61 and 1215 meters.	April-May	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Slender Orcutt Grass <i>Orcuttia tenuis</i>	FT;--;--;1B	Vernal pools, typically ones with long inundation periods.	May-Sept	<b>No.</b> No suitable habitat occurs in the study areas.
Stony Creek Spurge <i>Chamaesyce ocellata</i> ssp. <i>rattanii</i>	--;--;--;1B	Chapparral; Valley and foothill grassland between 80 and 850 meters.	May-October	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Veiny Monardella <i>Monardella douglasii</i> ssp. <i>venosa</i>	--;--;--;1B	Cismontane woodland, valley and foothill grassland, heavy clay soils from 200 to 1,200 feet above MSL.	May - July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
White-stemmed clarkia <i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	--; --; SLC; 1B	Often occurs on road cuts, openings, dry brushy slopes, and sometime in serpentine soils within chaparral, and cismontane woodland habitats.	May-July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Woolly rose-mallow <i>Hibiscus lasiocarpus</i>	-- ;-- ;-- ; 2	Marshes and swamps.	June-Sept	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
<b>Invertebrates</b>				
Antioch Dunes Anthicid Beetle <i>Anthicus sacramento</i>	--;--;--;--	Interior sand dunes and sand bars.	Year-round; adults collected in June-July	<b>No.</b> No suitable habitat occurs in the study areas. All potential well sites are highly disturbed.
Conservancy fairy shrimp <i>Branchinecta conservatio</i>	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat. Typically occur in large, deep, turbid, long-standing pools.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	<b>No.</b> No suitable habitat occurs in the study areas.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	FT; --; --; --	Associated with its host plant elderberry shrubs ( <i>Sambucus</i> spp.).	Best observed February through April.	<b>Low.</b> Several shrubs occur within 100 feet of potential well A2 Edson Property, but they are isolated and show no evidence of beetle occurrence.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	FT; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	<b>No.</b> No suitable habitat occurs in the study areas.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	FE; --; --; --	Vernal pools, swales, and ephemeral freshwater habitat.	Identified through UFWS protocol-level wet-season sampling and/or dry season cyst identification.	<b>No.</b> No suitable habitat occurs in the study areas.
<b>Amphibians/Reptiles</b>				
California red-legged frog <i>Rana aurora draytonii</i>	FT; CSC; --; --	Requires a permanent water source and is typically found along quiet slow moving streams, ponds, or marsh communities with emergent vegetation.	Optimal detection is through aquatic sampling during the summer months, but care should be taken to apply a level of effort and to use a style of surveying appropriate to the site.	<b>No.</b> No suitable habitat occurs in the study areas.
Giant garter snake <i>Thamnophis gigas</i>	FT; CT; --; --	Agricultural wetlands and other wetlands such as irrigation and drainage canals, low gradient streams, marshes, ponds, sloughs, small lakes, and their associated uplands.	April-October; Over-winters/hibernates subsurface during November - March	<b>No.</b> No suitable habitat occurs in the study areas.
Northwestern Pond Turtle <i>Actinemys marmorata marmorata</i>	--;CSC;--;--	Found in permanent or near-permanent ponds, backwaters, or slow-moving streams. Prefers areas with basking sites.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Western spadefoot toad <i>Spea hammondi</i>	-- ; CSC; --; --	Breeds in seasonal wetlands such as vernal pools. Requires upland refugia such as small mammal burrows during dry months.	Most easily found during breeding season when seasonal pools are filled.	<b>No.</b> No suitable habitat occurs in the study areas.
<b>Fish</b>				
Central Valley spring-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FT; CSC; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Spring run	<b>No.</b> No suitable habitat occurs in the study areas.
Central Valley winter-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	FE; CSC; --; --	Mainstem of the Sacramento River and some tributaries.	Winter run	<b>No.</b> No suitable habitat occurs in the study areas.
Central Valley steelhead <i>Oncorhynchus mykiss</i>	FT;--; --; --	Coastal basins from the Russian River, south to Soquel Creek, and San Francisco and San Pablo Bay basins. Excludes the Sacramento-San Joaquin River basins.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Delta smelt <i>Hypomesus transpacificus</i>	FT; CT; --; --	Sacramento and San Joaquin Rivers and their tributaries.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Green Sturgeon <i>Acipenser medirostris</i>	FT;--;--;--	Sacramento and San Joaquin Rivers and their tributaries.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
<b>Birds</b>				
Bald eagle <i>Haliaeetus leucocephalus</i>	FPD; CE (fully protected); --; - (Nesting and Wintering)	Nesting restricted to the mountainous communities near permanent water sources. Winters throughout most of California at lakes, reservoirs, river systems, and coastal wetlands.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Bank Swallow <i>Riparia riparia</i>	--;CT;--;--	Builds nesting colonies in steep sandy river banks.	April-Aug; neo-tropical migrant	<b>No.</b> No suitable habitat occurs in the study areas.
Great Blue Heron <i>Ardea herodias</i>	MBTA;--;--;-- (rookery)	Forms rookeries in large trees typically adjacent to large rivers.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Great Egret <i>Ardea alba</i>	MBTA;--;--;-- (rookery)	Forms rookeries in large trees typically adjacent to large rivers.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Northern Harrier <i>Circus cyaneus</i>	--;CSC;--;--	Typically inhabits marshes, oak savannahs, wetlands, or grasslands.	Year-round	<b>Present.</b> Observed foraging adjacent to the RW-2 Knox Well site.
Osprey <i>Pandion haliaetus</i>	--;--;--;--	Year –round resident near fresh or salt water; eats mostly fish. Builds large visible stick nests often on powerline poles and other man-made structures.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Swainson’s hawk <i>Buteo swainsoni</i>	-- ; CT; -- (Nesting)	Nests in isolated trees or riparian woodlands adjacent to suitable foraging habitat (agricultural fields, grasslands, etc.).	March 20 -April 20 and June 10-July 30 optimum to locate nests; resident March-Sept	<b>Low.</b> Documented occurrence within 5-miles of site; although nest sites are not “active” and latest documented occupied nest within 5 miles was in 1996.
Tricolored blackbird <i>Agelaius tricolor</i>	-- ; CSC; --; -- (Nesting Colony)	Nest in dense cattail, blackberry, tules, willow, or wild rose within emergent wetlands throughout the Central Valley and foothills surrounding the valley.	Year-round	<b>No.</b> No suitable habitat occurs in the study areas.
Western burrowing owl <i>Athene cunicularia hypugaea</i>	-- ; CSC; --; -- (Burrow Sites)	Nests in burrows in the ground, often in old ground squirrel burrows or badger, within open valley and foothill grassland and desert habitat.	Year-round	<b>Low.</b> Some potential for occurrence within 500-feet of well sites, but marginal habitat occurs. Not observed during survey.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	FC; CE; --; -- (Nesting)	Nests in valley, foothill, and desert, riparian communities with a dense understory foliage. Also known to nests in walnut and almond orchards (CDFG 2002).	April-September	<b>No.</b> No suitable habitat occurs in the study areas.
White-tailed kite <i>Elanus leucurus</i>	--;CFP;--;--	Fairly common in grasslands, farmlands, even highway median strips.	Year-round	<b>Low.</b> Potential for the species to nest in adjacent mature trees and utilize general study areas for foraging. Not known to occur within survey areas. Not observed during surveys.
Yellow-breasted chat <i>Icteria virens</i>	--;CSC;--;--	Inhabits dense thickets and brush. Nests along streams and rivers.	April-Sept	<b>No.</b> Potential for the species to forage in general study areas; although, routine disturbance from agriculture activities and fragmented habitat would preclude the species nesting proximal to potential well sites. Not observed during surveys.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Yellow warbler <i>Dendroica petechia brewsteri</i>	--;CSC;--;--	Favors wet habitats, especially willows and alders; open woodlands, gardens, and orchards.	April-Sept	<b>Low.</b> Some potential for the species to nest in adjacent trees or brush, and utilize general study areas for foraging; although, routine disturbance from agriculture activities might preclude the species nesting near several potential well sites. Not observed during surveys.
Raptors (Hawks, Owls and Vultures), and Other Migratory Birds	MBTA(Migratory Bird Treaty Act); §3503.5 DFG Code	Nest in a variety of communities including cismontane woodland, mixed coniferous forest, chaparral, montane meadow, riparian, and urban communities.	Most nesting raptors are found in larger mature trees but some nest on the ground.	<b>Present.</b> Turkey vulture, red-tailed hawk, northern harrier, and American kestrel observed during survey. Trees adjacent to potential well sites present nesting opportunities; although, no existing nests were observed within 500-feet during surveys.
<b>Mammals</b>				
Hoary bat <i>Lasiurus cinereus</i>	-- ;CSC ;-- ;--	Occurs widely across California in many habitat types. The species prefers areas containing heavy tree cover for roosting and adjacent open areas for foraging. Must have a consistent water supply.	Feb-Sept; migrates seasonally	<b>None.</b> No suitable roosting habitat was observed in the study areas.
Pallid bat <i>Antrozous pallidus</i>	-- ;CSC ;-- ;--	Widespread throughout California except the high Sierra Nevadas from Shasta to Kern Counties. The species is most common in dry, open areas with rocky areas for roosting.	Year round in most of range	<b>None.</b> No suitable roosting habitat was observed in the study areas.
Townsend's Big-eared Bat <i>Corynorhinus townsendii</i>	--;CSC;--;--	Found in coniferous forests, deserts, riparian forests, and coastal areas from sea level to approximately 6,000 feet	Year-round; Makes seasonal migrations in California.	<b>None.</b> No suitable roosting habitat was observed in the study areas.
Western Mastiff Bat <i>Eumops perotis californicus</i>	--;CSC--;--	The range of this subspecies is principally southwest desert regions of the United States, along the border with Mexico; however, the range extends as far north on the Pacific coast to Alameda County, California.	Year-round	<b>None.</b> No suitable roosting habitat was observed in the study areas.

Special-Status Species	Regulatory Status (Federal; State; Local; CNPS)	Habitat Requirements	Identification Period	Potential for Occurrence
Western Red Bat <i>Lasiurus cinereus</i>	--;CSC;--;--	Found in a variety of habitats throughout the western U.S. Often observed foraging in riparian corridors.	Year-round	<b>None.</b> No suitable roosting habitat was observed in the study areas.
<p><b>Federally Listed Species:</b></p> <p>FE = federal endangered      FC = candidate</p> <p>FT = federal threatened      PT = proposed threatened</p> <p>FPD = proposed for delisting</p> <p>FD = delisted</p> <p><i>Source: Foothill Associates</i></p>				
<p><b>California State Listed Species:</b></p> <p>CE = California state endangered</p> <p>CT = California state threatened</p> <p>CR = California state rare</p> <p>CSC = California Species of Special Concern</p> <p>CFP = California Fully Protected</p>				
<p><b>CNPS* List Categories:</b></p> <p>1A = plants presumed extinct in California</p> <p>1B = plants rare, threatened, or endangered in California and elsewhere</p> <p>2 = plants rare, threatened, or endangered in California, but common elsewhere</p> <p>3 = plants about which we need more information</p> <p>4 = plants of limited distribution</p> <p><b>Other Special-status Listing:</b></p> <p>SLC = species of local or regional concern or conservation significance</p>				



### 5.5.1 Listed and Special-Status Plants

Based on a records search of the CNPS, CNDDDB, and the USFWS list, special-status plant species have the potential to occur in the vicinity of the site. Based on site surveys and literature review specific to the special-status plants listed in **Table 1**, no special-status plant species have the potential to occur at the proposed well sites, or be affected by the proposed Project.

### 5.5.2 Listed and Special-Status Animals

Based on a records search of the CNDDDB and the USFWS list, special-status animal species have the potential to occur onsite or in the vicinity. Based on field observations and literature review specific to the special-status animals listed in **Table 1**, the potential for occurrence has been determined for each species.

Species that are known to be present or that are considered to have a **high** potential to occur onsite are regionally occurring raptors (hawks, owls and vultures), and other migratory birds.

The species that are considered to have a **low** potential to occur within or adjacent to the Project areas include valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), Swainson's hawk (*Buteo swainsoni*), western burrowing owl (*Athene cunicularia hypugaea*), white-tailed kite (*Elanus leucurus*), and yellow warbler (*Dendroica petechia*).

## Species Present or with a High Potential for Occurrence

### Raptors and Migratory Birds

Raptor and migratory bird species are known to forage and nest within agricultural areas and are expected to occur within the vicinity of proposed well sites. While surveying the sites, red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), and turkey vulture (*Cathartes aura*) were observed foraging in proximity to proposed Project sites. Migratory birds including, western meadowlark and white-crowned sparrow were also observed.

Raptor and migratory bird nests are protected under the MBTA and raptors specifically, by Section 3503.5 of the California Fish and Game Code. Well sites A2 Edson Property, A3 Edson Property, A4 Fox Property, and A1 Pitter Property have the greatest potential to have raptor or migratory birds nesting within their vicinity. Several commonly occurring raptor and migratory bird species have a high potential to occur near Project sites.

## Species with a Low Potential for Occurrence

### Valley Elderberry Longhorn Beetle

The valley elderberry longhorn beetle (VELB) depends on elderberry shrubs for its entire lifecycle. Adults are typically active from March through May during the flowering period of the elderberry shrub. The female lays its eggs on the leaves and stems of the elderberry shrub. The larvae emerge within a few days and burrow into the elderberry stem. The larvae feed on the stem pith until they pupate. When the host shrub begins flowering, the pupa emerges from the stem as an adult creating exit holes on the stem (Barr 1991).

Typically, the beetles are found on elderberry shrubs within riparian plant communities. Some studies have found that multiple elderberry shrubs clumped together provide superior habitat for the beetle while isolated elderberry shrubs are less likely to support beetle populations (Collinge *et al.* 2001). Typical plant species that co-occur with the elderberry shrubs include California sycamore (*Platanus racemosa*), willows (*Salix* sp.), blackberry (*Rubus* sp.), and poison oak (*Toxicodendron diversilobum*) (USFWS 1984). Beetles require elderberry stems with a basal diameter of at least 1 inch in order for the larvae to utilize the stems (USFWS 1999).

Four relatively isolated elderberry shrubs were located in the vicinity of the A2 Edson Property potential well site. Though shrubs had stems greater than 1-inch in basal diameter, no evidence of the VELB was observed (i.e. exit holes on the stems) at the time of the survey. There is a low potential for occurrence of VELB adjacent to this potential well site.

### Northern Harrier

The northern harrier is a large gray or brown raptor species. The female is typically larger than the male. It is typically inhabits marshes, oak savannas, wetlands, or grasslands. Northern harriers are usually year-round residents in California. Some individuals from other areas will over-winter in California. Nests are typically built on the ground or in low shrubs. Northern harriers typically feed on small mammals, reptiles, and insects. It is considered a California Species of Special Concern by the California Department of Fish and Game. Although there are no records in the CNDDDB for this species within five miles of the site, this species was observed foraging at the RW-2 Knox Well site during the field assessment.

### Swainson's Hawk

Swainson's hawk is a long-distance migrant with nesting grounds in western North America. The Swainson's hawk population that nests in the Central Valley winters primarily in Mexico, while the population that nests in the interior portions of North America winters in South America (Bradbury *et al.* in prep.). Swainson's hawks arrive in the Central Valley between March and early April to establish breeding territories. Breeding occurs from late March to late August, peaking in late May through July

(Zeiner *et al.* 1990). In the Central Valley, Swainson's hawks nest in isolated trees, small groves, or large woodlands next to open grasslands or agricultural fields. This species typically nests near riparian areas; however, it has been known to nest in urban areas as well. Nest locations are usually in close proximity to suitable foraging habitats, which include fallow fields, annual grasslands, irrigated pastures, alfalfa and other hay crops, and low-growing row crops. Swainson's hawks leave their breeding grounds to return to their wintering grounds in late August or early September (Bloom and Van De Water 1994).

There are three records (greater than five years old) in the CNDDDB for this species within 10 miles of the site (CNDDDB 2008). This species was not observed on the site or in the vicinity during the field survey. Due to historical nesting within five miles of the site and the general lack of more recent regional survey data, there is a low potential for the bird to occur within ½ mile of the project site.

#### White-tailed Kite

The White-tailed kite is a locally common resident throughout California where there is suitable habitat. Their population is scattered widely throughout California during the non-breeding season. They occur in low elevation grassland, agricultural, wetland, oak-woodland, and oak-savannah habitats, and riparian areas adjacent to open areas (Small 1994). Nests are placed in trees and large shrubs, most nests are on habitat edges and are placed in the upper third of the tree (Dunk 1995). This species is considered both a California State Species of Special Concern and a Fully Protected Species (CDFG 2008). In recent years, this species has become increasingly less common in southern California. It is known to occur as a resident in the local area (Small 1994). Several potential well sites are situated adjacent to suitable nesting and foraging habitat for the species. Therefore, the species has a low potential for occurrence within the vicinity of proposed well sites.

#### Yellow Warbler

The yellow warbler was once considered a widespread and common nesting species in riparian areas throughout Southern California (Dunn and Garrett 1997); it is now considered locally common during the nesting season and is a common migrant in spring and fall (Dunn and Garrett 1997). They nest in wet, deciduous thickets, especially those dominated by willows, and in disturbed and early successional habitats, as well as in montane areas to 2,700 m (8,850 ft) along watercourses with riparian growth (Dunn and Garrett 1997). They nest from mid-May to early August (Lowther et al. 1999). The nest is a deep cup built of grasses and strips of bark covered with plant down and fine fibers placed in upright fork of bush, sapling, or tree, usually within 6 m (to 15 m) of the ground (Lowther et al. 1999). This species has been heavily impacted by degradation and destruction of riparian habitat by cattle grazing and human-related disturbances as well as by parasitism by the brown-headed cowbird (*Molothrus ater*). The yellow warbler is considered to be a California Species of Special Concern (CDFG 2008). Due to the

presence of suitable nesting and foraging habitat within the vicinity of several potential well sites, the species has a low potential for occurrence.

#### Western Burrowing Owl

Western burrowing owl is a small ground-dwelling owl that occurs in western North America from Canada to Mexico, and east to Texas, and Louisiana. Although in certain areas of its range western burrowing owls are migratory, these owls are predominantly non-migratory in California (Zeiner *et al.* 1990). The breeding season for western burrowing owls occurs from February to August, peaking in April and May (Zeiner *et al.* 1990). Western burrowing owls nest in burrows in the ground, often in old ground squirrel burrows. This owl is also known to use artificial burrows including pipes, culverts, and nest boxes. Frequency of disturbance associated with mowing, harvesting, etc., lowers the potential for this species to occur.

Although, there are no CNDDDB records for this species within five miles of the site (CNDDDB 2008) and no western burrowing owls or nesting burrows were observed during the biological assessment, the species is known to occur regionally and suitable habitat for this species occurs within the vicinity of proposed well sites. Therefore, the potential for burrowing owls to occur within proximity to potential well sites is low.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

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As discussed, the Deer Creek Flow Enhancement Program Project sites consist of, or are adjacent to, land comprised primarily of irrigated pasture and deciduous orchard. Known or potential biological constraints associated with these sites include the following:

- Potential habitat for valley elderberry longhorn beetle adjacent to site A2 Edson Property;
- Potential nesting habitat and foraging habitat for raptors, including Swainson's hawk and western burrowing owl, adjacent to proposed sites;
- Potential nesting habitat for other bird species protected by the MBTA, adjacent to proposed sites; and
- Potentially jurisdictional waters of the U.S. (ephemeral drainage) in the vicinity of A4 Fox Property well site.

### 6.1 Valley Elderberry Longhorn Beetle

Although no VELB, or evidence of use by VELB, was observed during site surveys, elderberry shrubs adjacent to site A2 Edson Property are considered suitable habitat for VELB. Two CNDDDB records for VELB occurring approximately five miles west of the site are recorded (**Figure 3**).

It is the responsibility of the CEQA lead agency, or its designated representatives under CEQA, to formulate and implement any necessary mitigation for potential impacts to federally listed species, including VELB, that may result from construction and/or implementation of a proposed project as prescribed by USFWS. Currently, the USFWS suggests mitigation for impacts to any elderberry shrub with stems of greater than 1 inch diameter at ground level within the Central Valley region of California. Complete avoidance of elderberry shrubs is accomplished by maintaining a 100-foot buffer from the plants dripline. In this specific case, although shrubs are located within 100-feet of the proposed well site, they are on the opposite site of a concrete lined agricultural canal. Project activities would not be expected to impact, or negatively affect VELB, if general avoidance measures are taken to avoid physically injuring shrubs located near the proposed site. Detailed avoidance and mitigation measures are contained in *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (USFWS 1999).

### 6.2 Raptors and Migratory Birds

#### 6.2.1 *Raptors, including northern harrier, Swainson's hawk, and white-tailed kite*

Raptors may forage and could potentially nest within ¼ mile of the site. Active raptor nests are protected by the California Fish and Game code Section 3503.5 and the MBTA. For this reason, if construction is expected to occur during the nesting season (February 1-August 31), a pre-construction raptor survey is recommended to determine if active

raptor nests are present on or within 500 feet of the site. Since Swainson's hawk has been known to nest in the vicinity of the site (within a 10 mile radius), the survey area for this species should be extended to a 1/2 mile surrounding the site. The survey/s should be conducted by a qualified biologist no more than 30 days prior to the onset of construction. If any nests are found and considered to be active, construction activities should not occur within 500 feet, or 1/2 mile if the nest is an active Swainson's hawk nest, until the young have fledged. If construction activities are proposed to occur during the non-breeding season (September 1-January 31), a survey is not required and no further studies are necessary.

### **6.2.2 *Migratory Birds, including yellow warbler***

Habitats in proximity to the proposed well sites provide suitable habitat for a number of common and special-status birds protected solely by the MBTA. The MBTA prohibits the killing, or "take" of migratory birds. Therefore, if any vegetation removal, or intense disturbance, occurs during the typical avian nesting season (February 1-August 31), a pre-construction survey for nesting migratory birds is recommended, to determine if active nests are present and would be affected by well drilling activities. The survey should be conducted by a qualified biologist no more than two weeks prior to the onset of vegetation removal. If active nests are found on the site, disturbance or removal of the nest should be avoided until the young have fledged and the nest is no longer active. Extensive buffers, such as those recommended for nesting raptors, are not necessary for nesting avian species protected solely by the MBTA. However, depending on the species, site conditions, and the proposed construction activities near the active nest, a small buffer may be prescribed, as determined by the biologist. Alternatively, vegetation removal could be scheduled to avoid all potential impacts. Vegetation removal conducted between September 16 and January 31 will prevent impacts to nesting birds or unfledged young.

### **6.3 Swainson's Hawk Foraging Habitat**

Though it could be argued Swainson's hawk foraging habitat is present within several of the well sites, loss of Swainson's hawk foraging habitat will be very minimal and will not negatively affect the survivability of any locally occurring individual. Therefore, the project is not expected to require mitigation. Additionally, no "active" (used within the past 5 years) nest site is known to occur within 10 mile of the site.

### **6.4 Burrowing Owl**

Although burrowing owls were not observed during the field reconnaissance, the general vicinity contains suitable habitat for burrowing owl. For this reason, it is recommended that a burrowing owl survey be conducted no more than 30 days prior to the onset of construction. Burrowing owls can be present during all times of the year in California, so this survey is recommended regardless of the time construction activities occur. If active owl burrows are located during the pre-construction survey, it is recommended that a 250 foot buffer zone be established around each burrow with an active nest until the young

have fledged and are able to exit the burrow. In the case of occupied burrows without active nesting, active burrows after the young have fledged, or if development commences after the breeding season (typically February 1-August 31), passive relocation of the birds should be performed. Passive relocation involves installing a one-way door at the burrow entrance, which encourages the owls to move from the occupied burrow. CDFG should be consulted for current guidelines and methods for passive relocation of any owls found on the site. Mitigation for project impacts that result in relocation of burrowing owls and loss of burrows and/or foraging habitat may be required for CEQA projects (CDFG recommends 6.5 acres of foraging habitat for burrowing owl be preserved for each active burrow that would be impacted by project activities). The lead agency under CEQA, in coordination with CDFG, is responsible for prescribing appropriate mitigation for any project-related impacts to burrowing owls. These mitigation measures would only apply in the event that burrowing owls were encountered during the pre-construction survey.

## **6.5 Sensitive Habitats**

One unlined, presumably natural drainage and associated hydrophytic vegetation was noted in the vicinity of the proposed A4 Fox Property well site.

This drainage is potentially regulated by the Corps, Regional Water Quality Control Board (RWQCB), and CDFG. If project activities require the fill of any portion of this drainage, the feature needs to be formally delineated and verified and a pre-construction notification submitted to the Corps.

Prior to construction, the appropriate Section 404 permit should be acquired for any project-related impacts to jurisdictional features. Any waters of the U.S. that would be lost or disturbed should be replaced or rehabilitated on a “no-net-loss” basis in accordance with the Corps’ mitigation guidelines. Habitat restoration, rehabilitation, and/or replacement should be at a location and by methods agreeable to the Corps.

It is also recommended that a Streambed Alteration Agreement be obtained from CDFG, pursuant to Section 1600 of the CDFG Code, for each stream crossing and any other activities affecting the bed, bank or associated riparian vegetation of the stream. If required, the project applicant should coordinate with CDFG in developing appropriate mitigation, and should abide by the conditions of any executed permits.

If a 404 permit is required for the proposed project, water quality concerns during construction would be addressed in a Section 401 water quality certification from the Regional Water Quality Control Board. A Storm Water Pollution Prevention Plan (SWPPP) would also be required during construction activities. SWPPPs are required in issuance of a National Pollutant Discharge Elimination System (NPDES) construction discharge permit by the U.S. Environmental Protection Agency. Implementation of Best Management Practices (BMPs) during construction is standard in most SWPPPs and water quality certifications. Examples of BMPs include stockpiling of debris away from regulated wetlands and waterways; immediate removal of debris piles from the site during the rainy season; use of silt fencing and construction fencing around regulated

waterways; and use of drip pans under work vehicles and containment of fuel waste throughout the site during construction.

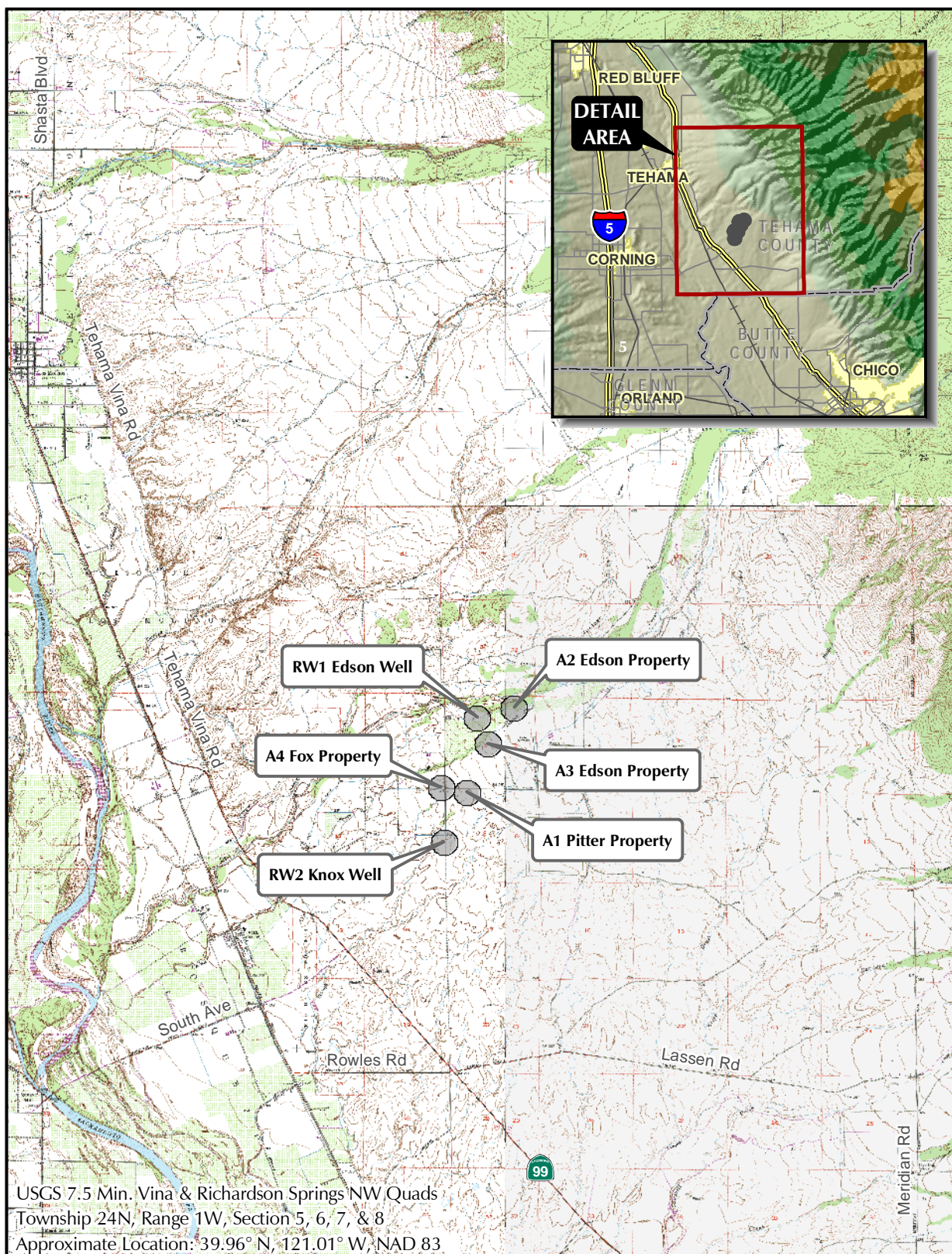


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## SITE AND VICINITY



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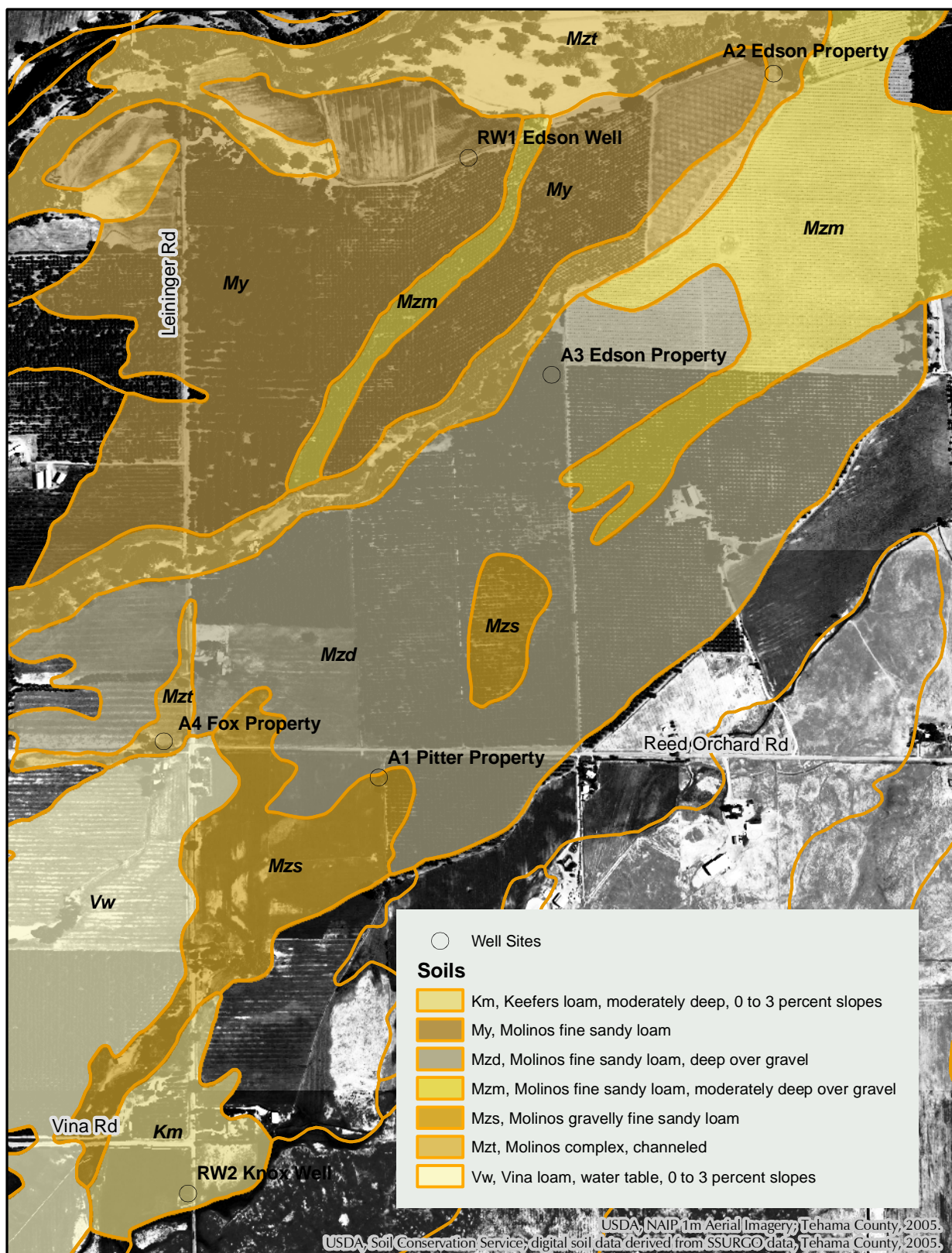


0 4500 9000  
 SCALE IN FEET

Drawn By: PDL  
 Date: 10/15/08

**FIGURE 1**





## SOILS



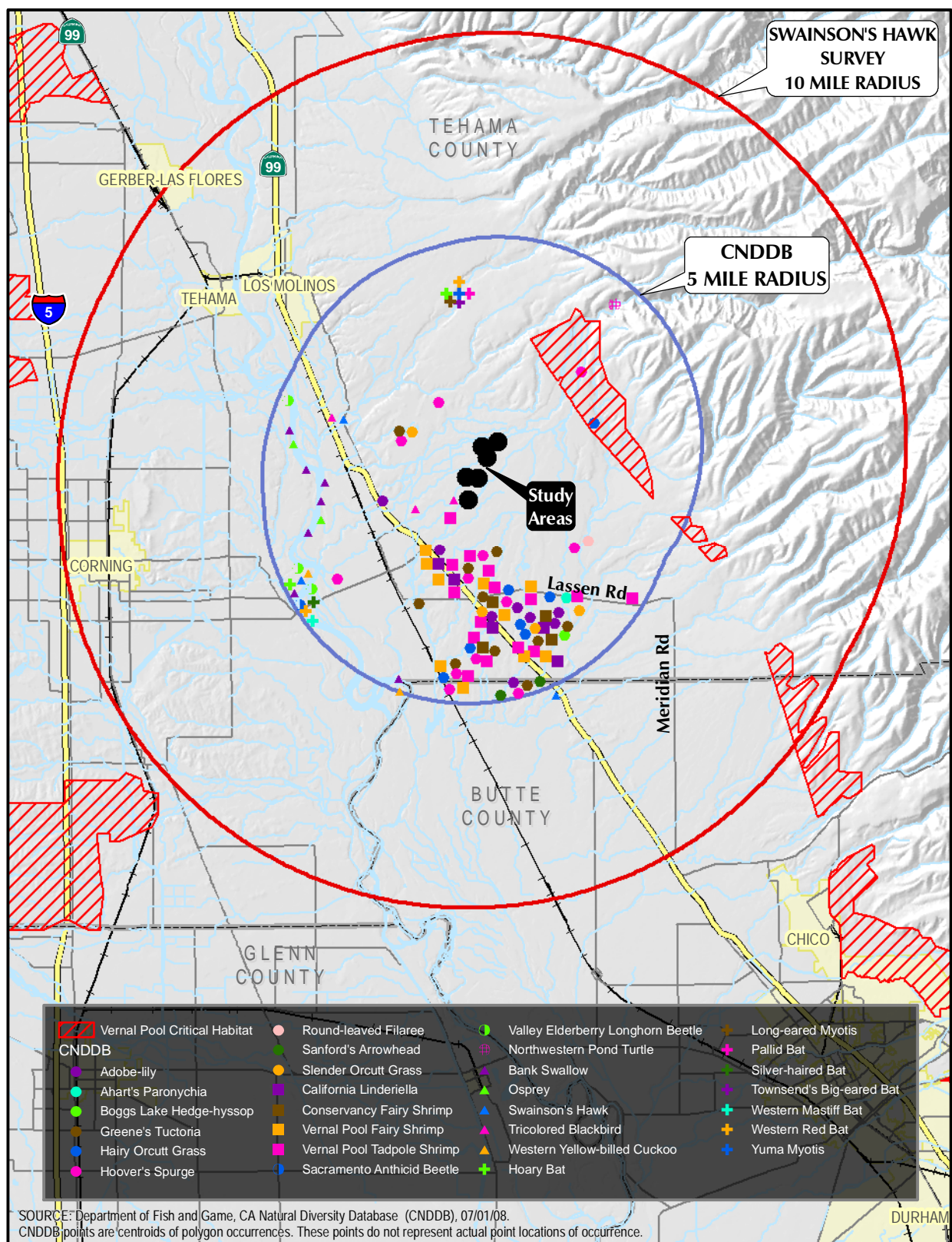
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0 500 1000  
SCALE IN FEET

Drawn By: PDL  
Date: 11/04/08

**FIGURE 2**



## CNDDDB & VP Critical Habitat



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0 1 2  
SCALE IN MILES

Drawn By: PDL  
Date: 11/05/08

**FIGURE 3**

## **Appendix A — Fauna Observed During Site Survey**

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SCIENTIFIC NAME	COMMON NAME
<b>Birds</b>	
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Cathartes aura</i>	turkey vulture
<i>Charadrius vociferus</i>	killdeer
<i>Circus cyaneus</i>	northern harrier
<i>Colaptes auratus</i>	northern flicker
<i>Falco sparverius</i>	American kestrel
<i>Sturnella neglecta</i>	western meadowlark
<i>Sturnus vulgaris</i>	European starling
<i>Zonotrichia leucophrys</i>	white-crowned sparrow
<b>Mammals</b>	
<i>Bos taurus</i>	domestic cow
<i>Equus caballus</i>	domestic horse

## **Appendix B — Flora Observed During Site Survey**

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SCIENTIFIC NAME	COMMON NAME
<i>Amsinckia</i> sp.	fiddleneck
<i>Avena</i> sp.	oat
<i>Bromus diandrus</i>	ripgut brome
<i>Carya illinoensis</i>	pecan
<i>Centaurea solstitialis</i>	yellow star-thistle
<i>Chichorium intybus</i>	chicory
<i>Cirsium vulgare</i>	bull thistle
<i>Croton setigerus</i>	dove weed
<i>Cynodon</i> spp.	Bermuda grass
<i>Datura stramonium</i>	jimson weed
<i>Euphorbia maculata</i>	spurge
<i>Festuca</i> sp.	fescue
<i>Gleditsia triacanthos</i>	honeylocust
<i>Juglans</i> sp.	walnut
<i>Lactuca serriola</i>	prickly lettuce
<i>Lolium perenne</i>	perennial ryegrass
<i>Paspalum</i> sp.	Dallis grasses
<i>Plantago lanceolata</i>	English plantain
<i>Platanus racemosa</i>	California sycamore
<i>Polygonum punctatum</i>	Smartweed
<i>Populus fremontii</i>	cottonwood
<i>Prunus dulcis</i>	almond
<i>Quercus lobata</i>	Valley oak
<i>Rubus discolor</i>	Himalayan blackberry
<i>Rumex crispus</i>	curly dock
<i>Sagittaria latifolia</i>	broadleaf arrowhead
<i>Sambucus</i> sp.	elderberry
<i>Silybum marianum</i>	milk-thistle
<i>Sorghum halepense</i>	Johnson grass
<i>Trifolium</i> sp.	clover
<i>Verbascum blattaria</i>	moth mullein
<i>Vitis californica</i>	California grape